**The Characteristics of a Stream**

**Objective:**  As we progress through the next few weeks you are going to learn what factors help to determine the health and characteristics of a stream and how exactly streams originate.  In particular, you will be studying our local stream, Jackson Run.  Prior to our field trip to Jackson Run we need to look at some of the areas you will be studying and why these areas are used when studying a stream.  You are also going to determine where the water from Jackson Run ultimately ends up.

**Part I:**  What is a Watershed?

[http://www.waterencyclopedia.com/Tw-Z/Watershed-Water-Quality-in-a.html (Links to an external site.)](http://www.waterencyclopedia.com/Tw-Z/Watershed-Water-Quality-in-a.html" \t "_blank)

1.  Using the site listed above, define a watershed.

2.  Why are watersheds so closely monitored?

3.  What is potability?

3.  It is rare today to have a healthy watershed.  Please explain.

4.  Explain how each of the following items are used to help indicate water quality:

*E. coli –*

Macroinvertebrates –

pH –

Nitrates –

Dissolved Oxygen –

Phosphorus –

[http://geography.about.com/od/physicalgeography/a/watersheds.htm (Links to an external site.)](http://geography.about.com/od/physicalgeography/a/watersheds.htm" \t "_blank)

1.  What are three key features to a watershed?  Explain each feature.

2.  What is the significance of studying watersheds?

3.  What impact do humans have watersheds?

4.  What is being done to manage and restore watersheds?

[http://en.wikipedia.org/wiki/Ohio\_River (Links to an external site.)](http://en.wikipedia.org/wiki/Ohio_River" \t "_blank) (look at the sources of the Ohio below the picture on the right side of the page)

[http://maps.google.com/maps/ms?ie=UTF8&oe=UTF8&msa=0&msid=117463128525277828935.00046d2d87da2350db5e5 (Links to an external site.)](http://maps.google.com/maps/ms?ie=UTF8&oe=UTF8&msa=0&msid=117463128525277828935.00046d2d87da2350db5e5" \t "_blank)

1.  Eventually the water of Jackson Run will find its way to the Ohio River Basin.

What is the Ohio River Basin?

2.  What are the identified problems that affect the Ohio River Basin?

**Part II:** Physical & Chemical Parameters of a Stream

[http://insects.about.com/od/water-quality-monitoring/qt/Water-Quality-Monitoring-Using-Aquatic-Macroinvertebrates.htm (Links to an external site.)](http://insects.about.com/od/water-quality-monitoring/qt/Water-Quality-Monitoring-Using-Aquatic-Macroinvertebrates.htm" \t "_blank)

1.  This site identifies what types of macroinvertebrates are found in water of good

quality versus water of poor quality.  What are examples of each?

[http://pathfinderscience.net/stream/cproto4.cfm (Links to an external site.)](http://pathfinderscience.net/stream/cproto4.cfm" \t "_blank)

[http://www.watersheded.dcnr.state.pa.us/what/chemical.html (Links to an external site.)](http://www.watersheded.dcnr.state.pa.us/what/chemical.html" \t "_blank)

2.  Explore and explain why each of the following factors are used for water analysis and

how the results may be used.

Color –

Dissolved Oxygen –

pH –

Turbidity –

Nitrates –

Hardness –

Alkalinity –

Iron –

Phosphates –

Odor –

[http://www.eoearth.org/article/Physical\_properties\_of\_rivers (Links to an external site.)](http://www.eoearth.org/article/Physical_properties_of_rivers" \t "_blank)

3.  Why is water movement crucial to the health of a stream?

4.  What is defined as being river current?

5.  The velocity of a river is different in different areas.  Explain.

6.  As a river becomes wider and deeper, what happens to its velocity?

7.  What is a gradient, and what is its effect on a stream’s velocity?

8.  What accounts for many of the materials found in a stream?

9.  What is sediment?

10.  What kinds of materials are found in sediment that are carried in a stream?

11.  Streams and rivers tend to meander.  What does meandering mean?

12.  Where in a meandering streambed is water moving the fastest?

 13.  What is happening on the outer bend versus the inner bend of a stream

that is meandering?  EXPLAIN

[http://www.waterencyclopedia.com/Re-St/Stream-Ecology-Temperature-Impacts-on.html (Links to an external site.)](http://www.waterencyclopedia.com/Re-St/Stream-Ecology-Temperature-Impacts-on.html" \t "_blank)

 14.  What affects does water temperature have on the quantities of oxygen found in

a stream?   How does this affect the life in a stream?

 15.  What is riparian vegetation?

 16.  What happens when humans alter riparian vegetation found streamside?

 17.  There are a number of ways listed that identify how human activity may either

increase or decrease the temperatures of streams.  Discuss these activities.

 18.  How will these activities alter a stream’s ecosystem?